

50X1-HUM

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Next 3 Page(s) In Document Denied

Page 4 of 12 Pages

Some Problems of Combat Against Army Aviation

by

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Since 1959, the US Army has had and has been developing army aviation which is organizationally part of ground forces formations and large units. Thus, a field army has an army aviation group (four companies) and a company attached to the artillery staff; an army corps has up to two companies; and a division has a battalion (at present a US infantry division has up to 110 aircraft and helicopters). The organization of army aviation in the British army and in the Federal Republic of Germany army is approximately the same.

As army aviation has been developed and improved, its tasks have been made more precise. Whereas in the recent past the most characteristic of army aviation tasks were such tasks as airlifting troops, cargo and equipment over relatively short distances, making liaison flights, supporting control, surveilling the battlefield, evacuating the wounded, laying smokescreens, and monitoring the security of troops, now (according to the views of the American command) to these have been added the tasks of conducting aerial and radiation reconnaissance and providing fire support to the large units of which they are a part.

The US is pressing forward with research on the use of army aviation as delivery vehicles for nuclear, chemical and bacteriological weapons and on improving the design of flying equipment (armor-plating vulnerable places on helicopters against ground fire, testing their various armament systems). All this testifies to an attempt to create air combat vehicles combining the properties of armored personnel carriers and assault aircraft.

For instance, the UH-1B Iroquois helicopter is equipped with three weapons systems: the XM-3 with mines (to destroy personnel from the air); the CBU-191A (E159) with toxic agents; and the XM-9 with illuminating and smoke charges.

50X1-HUM

Practice has shown that army aviation possesses good fire capabilities on the battlefield and is a highly mobile means of direct fire support and aerial reconnaissance for large units (of which they are part or attached

Page 5 of 12 Pages

50X1-HUM

as subunits). In addition, army aviation permits increasing the battlefield mobility of the ground forces, reducing their dependence on roads and sectors which are contaminated with radioactive and toxic substances.

Army aviation may be used in the rear zone for airlifting troops and cargo (its depth up to 150 kilometers from the front line), and in the combat operations zone (direct air support; landing and supporting the combat actions of tactical landing forces and of reconnaissance and sabotage groups; emplacing mine obstacles; etc.) at a depth of up to 40 to 50 kilometers from the front line on the enemy side.

From the aforementioned it may be concluded that combat with army aviation acquires great importance under modern conditions. The success of a battle or operation depends on its outcome to a great extent. Therefore, combatting army aviation requires not only the use of the forces and means of the air defense troops, but also of combined-arms (tank) and aviation large units and units, as well as units and subunits of other arms of troops.

We will examine what the actual capabilities of the air defense forces and means are for providing reliable protection of the troops from the activities of army aviation.

The means of radiotechnical reconnaissance of the air enemy used by our ground forces air defense system (type P-10, P-12, P-15, P-30 and P-35 radar sets), are highly accurate and can spot and surveil several air targets simultaneously. But the capabilities of these radar sets for spotting the air enemy at low and extremely low altitudes (on the order of 10 to 50 meters) are quite limited and do not ensure successfully combatting army aviation with the existing air defense means. It is practically impossible for the aforementioned radar means to create continuous radar coverage at low altitudes.

In this connection it does not now appear possible to use radiotechnical means for the timely warning of troops about enemy army aviation flights and actions. This will permit the enemy, using extremely low altitudes, to penetrate to the desired objectives secretly and with surprise. In order to mitigate this deficiency in some way, it is desirable (until highly mobile and small radar means, ensuring the reliable spotting of low altitude targets at great distances, are received in the armament) to continue improving the available radar sets and to seek more effective methods of creating continuous radar coverage in the zone of an army and front.

50X1-HUM

Page 6 of 12 Pages

Obviously special attention should be given to the positions expressed by a number of authors* about creating radar patrol aircraft (helicopters) and a system of posts for visual observation of the airspace, which will significantly increase the reliability, continuity and mobility of radiotechnical reconnaissance, as well as strengthen visual observation of the air. In addition, as has been mentioned more than once, the personnel of all arms of troops must be trained in the observation of the air and in the warning of aircraft and helicopters.

A definite role in combat with army air forces will be played by special purpose units, which effectively jam the radiotechnical reconnaissance equipment mounted on army aviation aircraft and helicopters, as well as their control nets.

The capabilities of medium-range surface-to-air missile systems do not fully meet modern requirements for spotting and destroying air targets at extremely low altitudes and for freedom from jamming. Low-altitude systems are more effective in this respect, but even they do not ensure the creation of a reliable kill zone to protect troops at low and extremely low altitudes. In addition, the surface-to-air missile systems themselves have to be protected by antiaircraft artillery and machineguns.

All this means that until entry into the armament of the troops (including motorized rifle and tank divisions and regiments) of improved and economical surface-to-air missile systems, the combat effectiveness of which will permit the reliable destruction of air targets at high, medium, low and extremely low altitudes under radio-jamming conditions, tube anti-aircraft artillery and machineguns which have highly rapid and effective fire at low altitudes will remain the principal means of combatting army aviation.

The experience of exercises and calculations have shown that to increase the capabilities of tank and motorized rifle large units and units in combat with high- and low-speed, low-altitude air targets it is desirable to have: in the antiaircraft artillery regiments of divisions, a battalion each of short range surface-to-air missiles, and antiaircraft artillery; in tank and motorized rifle regiments, antiaircraft artillery battalions (2 batteries of quadruple antiaircraft guns and a platoon of antiaircraft machineguns); in battalions, a platoon of self-propelled twin

50X1-HUM

*Prosvirkin, S., Field Air Defense in Combat with Low-Flying Targets.
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Page 7 of 12 Pages
50X1-HUM

antiaircraft guns; and in a company (platoon), 2 or 3 launchers for portable guided missile systems. In addition, it is desirable to mount heavy-caliber antiaircraft machineguns on all tanks and on a certain portion of armored personnel carriers.

Only the combined use of light (portable and mobile) field surface-to-air missile systems and rapid firing antiaircraft artillery in combination with automatic small arms fire of subunits, in our view, will permit the troops to effectively resolve the problem of combatting army aviation aircraft and helicopters.

In this connection, the proposal to create improved sights for small arms to permit effective fire to be conducted against both ground and air targets, deserves consideration. Practice firing has shown that small-arms fire is most effective in those instances when it is carried out by subunits no smaller than a platoon at ranges up to 500 meters by the tracking method using armor-piercing incendiary bullets and tracers.

Fighter aviation is one of the mobile and effective means of combatting low altitude and low speed air targets.

However, the continuity and effectiveness of its combat actions are largely predetermined by the availability of a constantly operating, continuous radar coverage. As experience has shown, the overall depth of fighter combat operations under conditions of ground radar support at an altitude of 100 to 200 meters, does not exceed 15 to 25 kilometers (10 to 15 kilometers from the front line on the side of our troops and the same on the enemy side), which obviously does not satisfy the demands made on it. This once more confirms the necessity of creating radar patrol aircraft and helicopters capable of surveilling low altitude air targets with their onboard radar means and supporting fighter actions against these targets at a depth of 150 to 200 kilometers.

At the same time it has become especially urgent to increase fighter capabilities for autonomous actions. This may be achieved by installing on fighters improved onboard equipment for aiming at and intercepting air targets with selection against the terrain background, and special navigational equipment which makes it easier for the pilot to fly the aircraft at low altitude, as well as increasing engine efficiency at these altitudes.

50X1-HUM

It also has become necessary to broaden fighter capabilities to intercept air targets on collision courses, as well as to destroy them from

Page 8 of 12 Pages

any angle of approach; this will permit them to avoid making a complex maneuver to attack aircraft and helicopters at low altitudes, and by the same token to carry the lines of interception considerably forward at all altitudes and speeds, and increase the air target search time or the time spent in duty zones.

As is known, modern fighters are based at large airfields which have hard-surfaced or packed-earth takeoff and landing strips. The construction of such airfields requires a long time and a large expenditure of materiel and equipment, which will not always be possible under combat conditions. This may lead to a lag in rebasing fighters and to an incomplete use of their combat capabilities against tactical as well as army aviation. In this connection, it would be most desirable to have a wheeled-ski chassis on aircraft intended for combat with army aviation, and to speed up the construction of vertical takeoff and landing fighters capable of operating from small earth strips.

In researching the questions of combatting army aviation, attention is called to the fact that it is not desirable to use modern supersonic aircraft for this purpose for economic reasons and because it is impossible to fully utilize all the combat properties of new aviation equipment.

The experience of exercises and flights to carry out combat training missions has shown that to destroy low-speed air targets it is more advantageous to use subsonic, multipurpose aircraft with turboprop engines, short vertical take-off and landings, and a wide range of flight speeds and altitudes. It also is desirable to equip field (auxiliary) aviation aircraft and helicopters with the appropriate armament for combat with army aviation aircraft and helicopters.

However, it would be wrong to limit combat with army aviation to the actions of air defense means alone. An important role will also be played by the strikes of rocket troops, artillery, fighter-bombers, and front bombers against the airfields, landing sites and supply bases of army aviation. These strikes may frustrate or limit the combat use of army aviation.

The experience of war games and exercises has shown that combat with army aviation is organized within the overall system of air defense troops on the basis of the same principles as combat with other types of aviation (concentration of the efforts of air defense means on covering the main groupings of troops and the most important objectives, continuity of combat, creation of favorable conditions for a wide movement by air defense

50X1-HUM

Page 9 of 12 Pages
50X1-HUM

forces and means, and close and precisely organized coordination among all forces and means participating in the combat with enemy aviation). But this system must have sufficient forces and means capable of successfully combatting army aviation without lowering the effectiveness of operations against other types of enemy aviation.

At the same time, this combat has its own special features, which are conditioned on the one hand by the high mobility of troops on the battlefield, by the rapid and sudden changes in the situation, and by the dispersal of ground forces combat dispositions, and, on the other hand, by the difficulties in the timely radar detection of army aviation aircraft and helicopters, and by the ability of army aviation to move independently and to select flight paths over sections of terrain not occupied by our troops and in the gaps between combat dispositions. In addition, the sufficiently powerful onboard armament of helicopters and their ability to land on small, unprepared landing sites are very important. At the same time, they are relatively vulnerable to air defense means and small arms.

All this undoubtedly heightens the role of direct cover of groupings of troops and objectives on the battlefield, and makes it necessary to give greater independence to the air defense of ground forces large units and units.

The intensity of army aviation flights and the limited capabilities for spotting them in time, in turn, bring about the requirement for the constant high combat readiness of our air defense means to immediately open fire, and increases the importance of their decentralized control.

Destroying army aviation aircraft and helicopters quite frequently will be combined with combatting tactical, and sometimes even strategic, aviation operating at low as well as high and medium altitudes. Consequently, the success of this combat will be determined by the proper distribution and skilful use of air defense forces and means in accordance with their intended use and tactical-technical capabilities. Therefore, when adopting a plan for the organization of air defense, each commanding officer (commander) must be sure to take into account the special features of reconnaissance and the destruction of army aviation aircraft and helicopters.

50X1-HUM

The plan (with due regard for the assumed army aviation actions) should provide for: the number of surface-to-air missile launchers, antiaircraft artillery, and antiaircraft machinegun mounts to be transferred to reinforce large units (units, subunits) and detachments

Page 10 of 12 Pages
50X1-HUM

operating while separated from the main forces; the sectors for search and firing against aircraft and helicopters; the procedure for the actions of air defense means to repel a simultaneous tactical and army aviation attacks; the procedure for using small arms for combat with enemy aircraft and helicopters; the procedure for moving fire and air defense forces and means to other axes; measures for maintaining continuous readiness of air defense means allocated or assigned for combat with army aviation, and also measures for restoring the combat effectiveness of the air defense forces and means subjected to enemy missile, air, and artillery strikes; and the tasks of all types of reconnaissance in discovering army aviation landing sites and supply bases, and in destroying aircraft and helicopters by deep reconnaissance groups.

An important place is occupied by the questions of organizing the reconnaissance of low-flying air targets by radiotechnical means and visual observation posts, determining their locations in combat dispositions, and organizing the warning of troops.

In view of the fact that army and front radiotechnical means cannot always deliver data on army aviation flights in a timely manner, and division radar stations cannot alone cope with these tasks, the fire control radar of antiaircraft batteries, formed into groups of 2 or 3 sets for target search in one given sector, may be used for the reconnaissance of low-flying targets. This makes it possible to compensate somewhat for the narrowness of the polar diagram of the fire control radar, and to conduct reconnaissance of air targets at low and extremely low altitudes. True, such use of fire control radar requires a corresponding crew training status and, in addition, somewhat weakens the capabilities of antiaircraft means to combat tactical aviation at medium and high altitudes.

Under these conditions the role and significance of visual observation posts organized in units (subunits) and at command posts, are increased. As the experience of exercises has shown, these posts can cope with their tasks successfully if they are situated on high ground; and, if they use highly mobile means when relocating, they are reliably protected from enemy fire.

It also is advantageous to use liaison aircraft and helicopters for reconnaissance of army aviation flights and bases. Worthy of consideration and requiring further study are the proposals for collocating the command posts of antiaircraft artillery and antiaircraft machinegun units and subunits with the visual observation posts, which would make it possible to reduce the time from the moment the enemy aircraft (helicopters) are

50X1-HUM

spotted to the opening of fire, and would increase the duration of fire.

Briefly about the special features of using fighter aviation. In several exercises 2 or 3 squadrons were allocated from each fighter aviation division to destroy army aviation aircraft and helicopters. This, of course, did not rule out the additional use of fighters performing other tasks, or retargeting fighters engaged in combat with army aviation to carry out other tasks.

The basic method of fighter combat operations in the radar field is to intercept air targets from "duty in the air". It is possible to perform tasks to destroy aircraft and helicopters outside the radar field only by the independent target search method ("the hunt"). The success of "the hunt" largely depends on the ability to determine the probable operations areas and flight axes of enemy army aviation.

Fighters perform target search individually and in pairs. In working out search and attacks on low-speed air targets flying at low and extremely low altitudes, the best results are obtained by making practice daytime tactical flight exercises under ordinary weather conditions or under cloud cover with a horizontal visibility of 4 to 5 kilometers, and with a fighter flight altitude of 600 to 800 meters higher than the assumed altitude of enemy aircraft and helicopter operations.

In a zone 20 to 30 kilometers wide it is advantageous to have 2 to 3 search routes, situated 4 to 6 kilometers distant from each other. The search begins from the most distant sector and gradually approaches our own territory. Having spotted a target, the fighter breaks out in a climb to the rear hemisphere of the helicopter (aircraft) and attacks it.

If the forces of the "hunters" are insufficient, an additional fighter detail is sent from the complement of duty subunits in the air or on the airfield in readiness No. 1 to reinforce them. In that case the "hunters" may direct the duty fighters to the helicopters (aircraft) they have spotted and which were in the operations area prior to the approach of our aircraft.

In support of combat with army aviation, fighters can conduct aerial reconnaissance of its bases and supply bases, and deliver assault strikes against them independently or jointly with units and subunits of other arms of aviation, cruise missiles, artillery, and rocket troops. 50X1-HUM

Page 12 of 12 Pages
50X1-HUM

Coordination of the air defense forces and means in combat with army aviation is organized not only within formations and large units but also with the air defense means of adjacent ones and with fighter aviation. The war games in January of this year convinced us that to carry out continuous coordination with fighter aviation it is desirable to send officers with communications means from the tank and motorized rifle divisions of the army first echelon to the nearest fighter aviation control posts. These officers not only participate in the allocation of targets among the fighters and antiaircraft means, but they also inform the division commander on the air situation (since the fighter aviation control posts usually have more complete data available on enemy aviation flights). This information will supplement the reports on enemy aviation flights in the division zone that the commander receives from his own visual observation posts.

During combat operations the army commander (large unit commanders) refines tasks and allocates new ones to antiaircraft units and subunits with due regard for the developing situation, the axes, and the tactics of the enemy army aviation; and he changes the distribution of the siting areas of surface-to-air missiles, antiaircraft artillery, and antiaircraft machineguns, and radiotechnical and visual observation posts, as well as the procedure for moving the air defense means, giving primary consideration to a more reliable cover of the troops carrying out the main mission.

Newly detected army aviation landing sites and supply bases which are immediately subjected to missile, artillery and air strikes. If a large unit commander has no, or insufficient, means for this, he requests help from coordinating large unit and unit commanders, or reports to his senior commander.

A brief examination (on the order of raising the question) of the special features of, and opinions on, the conduct of combat with army aviation leads to the conclusion that it includes the combat operations of all arms of air defense troops together with motorized rifle (tank) subunits, and that its effectiveness will be determined largely by the availability of appropriate armament and the development of the most efficient procedures and operational methods.

50X1-HUM